REMARKS/ARGUMENTS

Claims 2-8 are pending. Claims 7 and 8 have been amended to correct informalities. No claim has been added or canceled.

Claims 2-8 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Pat. No. 6,754,792. Applicants request to defer on this until an allowable subject matter has been identified, at which point Applicant may file a Terminal Disclaimer.

Claims 2-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Iskiyan et al. in view of Crockett et al. Applicants traverse the rejection.

The claimed embodiment relates to reducing delay in retransmitting after the volumes have been placed in suspend mode. Normally if a first primary volume experiences data transmission problem, the first primary volume and other primary volumes that did not experience problem are suspended together. Thereafter, they are made to start transmitting data once the first primary volume has been fixed, which needlessly delays data transmission of the other primary volumes that did not experience transmission problem.

The claimed embodiment solves the above problem as well as others. Claim 2 recites, "temporarily stopping the transmission of the data of said plurality of primary volumes to said secondary storage system if a data transmission problem is detected for said first paired volumes, and suspending said first and second paired volumes; creating replications of the data related to said first and second paired volumes within a target volume that is provided in said secondary storage system, and suspending said target volume; start transmitting the data from said second primary volume to said secondary storage system; and thereafter, transmitting the data from said first primary volume to said secondary storage system."

The cited references do not disclose the above features. As the Examiner noted, Iskiyan does not disclose or teach "the step of creating replications of the data related to the first and second paired volumes within a target volume that is provided in a secondary storage system." The Examiner, however, asserts that Crockett discloses the use of bit map and it would have been obvious to provide a target volume. Applicants disagree.

A bit map is very different than a target volume. The bit map indicates bits that have been changed, whereas the target volume is used to provide data mirroring. In addition, Crockett does not disclose or teach "start transmitting the data from said second primary volume to said secondary storage system" and "thereafter, transmitting the data from said first primary volume to said secondary storage system," so that the second primary volume may begin data transmission without waiting for the problem with the first primary volume to be fixed. Claim 2 is allowable at least for the reasons set for above.

Claim 3 recites, "said copy-source storage control unit having a plurality of primary logical volumes; said copy-destination storage control unit having a plurality of secondary logical volumes paired with said plurality of primary logical volumes; a communication line coupling said main center and said remote center for transferring data from said main center to said remote center; and a plurality of target volumes provided in said copy-destination storage control unit and paired with said plurality of secondary logical volumes, wherein the paired state between said target volume and said secondary logical volume is transited to a suspended state when the paired state between said primary logical volume and said secondary logical volume becomes the suspended state." The claimed embodiment above recites a plurality of target volumes that are paired to the secondary logical volumes, i.e., the target volume is made to mirror the secondary logical volumes. Crockett does not disclose or suggest at least this feature. The bit map disclosed in Crocket is very different than the target volume recited. The bit map cannot be paired to the secondary logical volume since it is used only to show what changes have been made. Claim 3 is allowable at least for this reason.

Claim 7 recites, "...creating replications of the data related to said other secondary logical volumes paired with said other primary logical volumes within at least one of target volumes paired with said other secondary logical volumes, and suspending said at least one of target volumes and said other secondary logical volumes; start transmitting the data from said other primary logical volumes to said secondary logical volumes paired with said other primary logical volumes; and thereafter, transmitting the data from said at least one of primary logical volumes used to be the that had experienced said data transmission problem to said

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secondary logical volumes paired with said at least one of primary logical volumes." The cited references do not disclose these features. Claim 7 is allowable.

Claim 8 recites, "creating replications of the data related to said other secondary logical volumes paired with said other primary logical volumes within at least one of target volumes paired with said other secondary logical volumes, and suspending said at least one of target volumes and said other secondary logical volumes; start transmitting the data from said other primary logical volumes to said secondary logical volumes paired with said other primary logical volumes; thereafter, transmitting the data from said at least one of primary logical volumes that had experienced the data transmission problem to said secondary logical volumes paired with said at least one of primary logical volumes; and transiting paired states between said secondary logical volumes and said target logical volumes to duplex states." The cited references do not disclose these features. Claim 8 is allowable.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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